Amendments to the Specification:

Please replace the paragraph at page 1, lines 18-22, with the following amended paragraph:

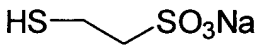
Organs and body systems most sensitive to the effects of ionizing radiation include the skin, hematopoietic and lymphatic systems, gonads, lungs, nerve tissues and the GI tract. In the case of whole body radiation exposure, all organ systems will be exposed to the effects of ionizing radiation.[[.]]

Please replace the paragraph at page 3, lines 22-23, with the following amended paragraph:

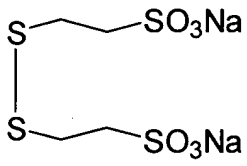
The structures of both mesna and dimesna are shown below as Formula [[I]]A and Formula [[II]]B, respectively.

Please replace the first two paragraphs at the top of page 4, containing only the structures currently designated (I) and (II) with the following same structures with amended designations (A) and (B), as follows:

([[I]]A)



([[II]]B)



Please replace the paragraph at page 8, lines 4-6, with the following amended paragraph:

This invention involves the administration of an effective amount of ~~compounds~~ a compound of formula I, below, for treating patients suffering from radiation sickness or for prophylactically treating a subject about to be exposed to ionizing radiation or about to undergo radiation therapy prior to beginning a radiation therapy session.

Please replace the paragraph at page 9, lines 4-10, with the following amended paragraph:

Given the formula I structure, compounds that are contemplated to be effective in the treatment method of this invention include mesna, dimesna ~~(thiethonate)~~, the phosphonate salts of mesna or ~~thiethonate~~ dimesna, certain hydroxylated derivatives thereof, and disulfide heteroconjugates of sulfur-containing amino acids, such as cysteine, homocysteine, glutathione and others.

Please replace the paragraph at page 9, lines 11-16, which was previously amended in the Amendment filed July 12, 2004, with the following amended paragraph:

Effective amounts of the formula I compounds to be administered according to the method of this invention vary, and depend ~~of~~ on the severity of the patient's or subject's exposure to radiation, the route of administration, and other factors. Ranges of preferred dosage amounts and schedules, as well as preferred methods of administration are set forth below.

Please replace the paragraph at page 9, lines 17-19, with the following amended paragraph:

Accordingly, it is an object of this invention to provide for a method of safely and effectively treating a patient or subject for exposure to radiation or for prophylactically treating a subject about to be exposed to ionizing radiation or about to undergo radiation therapy.

Please replace the paragraph at page 13, lines 3-11, with the following amended paragraph:

Currently, the most preferred regimen of treatment according to the invention is to administer to the patient or subject about 10 to 40 g/m^2 of ~~Disodium~~ disodium 2,2'-dithiobis ethane sulfonate ~~(thiethonate)~~ by IV infusion, beginning the infusion at approximately 30-45 minutes prior to the start of the radiation therapy session. Oral doses of 10 to 80 g/m^2 of ~~thiethonate~~ disodium 2,2'-dithiobis ethane sulfonate are administered at 2 hours post-treatment and at 6 hours post-treatment, with additional doses at 10 hours, et seq., determined by the patient's or subject's condition at that time.